

## ABSTRACT

A 4Pi microscope provided with an interferometer wherein two lenses (31, 33) are arranged in such a way that they are opposite to each other on different sides of a sample plane (35); also comprising an optical element (19) which is used to inject illuminating light (3) into the interferometer and/or used to discharge detection light (41) from the interferometer and to deflect a detection beam path, containing a reflecting means (51) which reflects illuminating light discharged by the optical element back into the interferometer and/or which allows detection light which is deflected onto the deflection beam to pass, also reflecting other discharged detection light which is not deflected onto the detection beam path into the interferometer.